

Amendments to the Specification:

Please add the following paragraphs following line 1, page 3 and before ¶1 on page 3:

FIG. 2 is a flowchart illustrating a method for optimizing command execution in a database system according to a preferred embodiment of the present invention.

FIG. 3 is a flowchart illustrating a process for verifying the accuracy of the selected row value according to a preferred embodiment of the present invention.

Please replace ¶2 on page 3 of the Specification with the following:

~~Figure~~ FIG. 1 illustrates, in a block diagram, data which is subject to the optimization of the preferred embodiment. FIG. 2 is a flowchart illustrating a method for optimizing command execution of such data according to a preferred embodiment. ~~Figure~~ FIG. 1 shows a portion of a relational database containing rows m and n, shown as records 12, 14 in the figure. ~~Figure~~ FIG. 1 also shows a temp table 16 in which data corresponding to rows m and n are shown as records 18, 20.

Please replace ¶3 on page 3 of the Specification with the following:

In the preferred embodiment, records in the relational database are stored on pages. The process of FIG. 2 begins when e~~Each~~ page has an identifier, such as a log sequence number (LSN), associated with the page (step 200). In ~~Figure~~ FIG. 1, data page 10 is shown with associated LSN 22. The LSN for the data page includes information which effectively provides a time stamp of the last modification made to any table data (records) on that page. With reference to the example of ~~Figure~~ FIG. 1, LSN 22 is updated when either record 12 or record 14, or any other record stored on data page 10, is modified in any way.

Please replace ¶4 beginning on page 3 of the Specification with the following:

As is indicated in ~~the diagram of Figure~~ FIG. 1 and FIG. 2, according to the preferred embodiment, a copy of the data page LSN is maintained in association with a record when that record is written to temp table 16. Temp table 16 is used to copy row values when an updatable scrollable cursor is used to retrieve table record values for a user. ~~In the example of~~ Referring to Figure FIG. 1 and FIG. 2, a cursor has been used to ~~access~~ select rows m and n (step 202) and therefore the row m value in record 12 in data page 10 is copied to record 18 in temp table 16 (step 204). Similarly the row n value in record 14 is copied to temp table 16 record 20 when a cursor in table is used to fetch row n for a user.

Please replace ¶1 on page 4 of the Specification with the following:

In the preferred embodiment, when record 18 having the value of row m is stored in temp table 16, a copy of LSN 22 is made and stored in the temp table 16 in association with record 18 (step 206). This is shown in ~~Figure~~ FIG. 1 as LSN 24. Similarly, a copy of LSN 22 is made in association with record 20 when the value of row n is copied to temp table 16. This associated LSN value is shown as LSN 26 in ~~Figure~~ FIG. 1.

Please replace ¶3 beginning on page 4 of the Specification with the following:

In the preferred embodiment, where SQL_CONCUR_VALUES attribute is associated with the table containing data page 10, and an UPDATE or DELETE operation is specified for, for example, row m or row n, based on the position of a cursor, it is necessary to ensure that the value of rows m and n as stored in temp table 16 are the same as the values as stored in data page 10. Although this may be carried out by a direct comparison of the attribute values in the respective rows in temp table 16 and data page 10, the preferred embodiment verifies that the

selected row values have not been modified based on the identifier associated with the page (step 210).

FIG. 3 is a flowchart illustrating a process for verifying the accuracy of the selected row value according to a preferred embodiment of the present invention. The process begins by determining the current value of the LSN 22 of the data page 10 from which the selected value 18 was copied (step 300). The current LSN 22 is then compared to the LSN value 24 associated with the selected value 18 (step 302). If the values match (step 304), is able to potentially avoid such a direct comparison by comparing the LSN values of the records. Where, for example, row m is subject to a positioned UPDATE or DELETE based on a scrollable cursor, the value of LSN 24 is compared with the value of LSN 22. Where these values match, it is necessarily the case that record 12 has not been modified since a copy of the value of row m was copied into record 18 in temp table 16. Thus, the selected record 18 is verified (step 306). If record 12 had been modified, the value of LSN 22 would have changed and there would therefore not be a match between the value of LSN 22 and the value of LSN 24, and the selected record 18 would not be verified (step 308). In this manner, it is possible to avoid comparing all attribute values of record 12 and of record 18 by carrying out the simple comparison of the value of LSN 24 and the value of LSN 22. Referring again to FIG. 2, ~~Where~~ where these values are different, i.e., are not verified (step 210), it will be necessary to carry out the direct comparison of record 12 and record 18 (step 214). However, this step may be avoided where the values of LSN 24 and LSN 22 are found to match (step 210). Where this is the case, the user will be able to directly execute a command (step 212), e.g., update the value of record 12, and rely on the record 18 value as corresponding to record 12.

Please replace the Abstract with the following amended Abstract: